Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-26 (Cancelled).

Claim 27 (Currently Amended): A method of producing a blank biochip, comprising:

a) providing a substrate;

b) depositing a layer of material [[on]] onto a surface of said substrate; wherein said layer can initiate and promote the adhesion of a copolymer film comprising a pyrrole and a functionalized pyrrole by electropolymerisation;

c) coating the layer of material with a resin layer; and

d) producing a plurality of ~~microtroughs~~ microwells in the resin layer wherein the layer of material forms at least a part of the base of the microwells; ~~microtroughs.~~

wherein said base of the microwells provides for initiating and promoting thereon the adhesion of the copolymer film comprising pyrrole and funtionalized pyrrole by electropolymerization after the formation of the microwells, and

wherein the copolymer film allows for the fixation of a biological probe on the base of the microwells.

Claim 28 (Previously Presented): The method of claim 27, further comprising

e) directly or indirectly fixating a biological probe to the functionalised pyrrole by injecting a biological probe solution, in one or more microtroughs in the presence of chemical reagents required for the fixating.

Claim 29. (Currently Amended) The method of claim 27, wherein the layer of material is a metallic layer and wherein b) further comprises

depositing the metallic layer onto the substrate; depositing a layer of resin or polymer onto the metallic layer; and engraving the resin layer to form microtroughs; and wherein the metallic layer forms at lest a part of the base of the microtroughs.

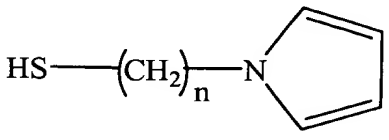
Claim 30 (Previously Presented): The method of claim 29, wherein the metallic layer is a gold layer.

Claim 31. (Previously Presented): The method of claim 30, which further comprises

chemically treating the gold layer at the base of the microtroughs in the presence of a functionalized pyrrole to form a pyrrole monolayer to the gold layer at the base of the microtroughs.

Claim 32 (Previously Presented): The method of claim 31, wherein the functionalized pyrrole contains a thiol group.

Claim 33 (Previously Presented): The method of claim 32, wherein the functionalised pyrrole with a thiol group has the following chemical formula:



wherein n is from 2 to 10.

Claim 34. (Previously Presented): The method according to claim 27, wherein the substrate is a silicon insert.

Claim 35. (Previously Presented): The method of claim 27, wherein the substrate is a silicon insert and the layer of material is a layer of silane comprising an alignment of pyrrole sites; wherein the method further comprises depositing a layer of resin on the silicon insert, which is coated with an SiO_2 film; and engraving the resin layer to form the microtroughs, wherein the SiO_2 film forms at least a part of the base of the microtroughs; and treating the microtroughs with a functionalized silanization agent and a pyrrole to fix the silane layer comprising an alignment of pyrrole sites on the SiO_2 film in the base of the microtroughs.

Claim 36 (Previously Presented): The method of claim 35, wherein the silanisation agent is selected from the group consisting of N(3-(trimethoxysilyl)propyl) pyrrole, a functionalized pyrrole with a $-SiCl_3$, and a functionalized pyrrole with a $-Si(OMe)_3$ group.

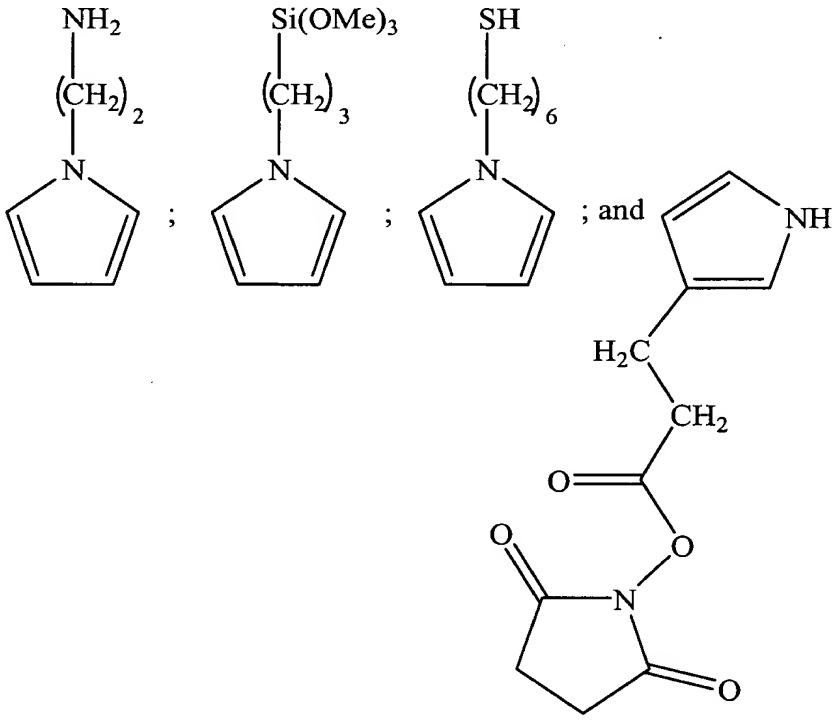
Claim 37 (Previously Presented): The method of claim 27, which further comprises

immersing the structured substrate in an electrolytic bath comprising a solution of pyrrole, functionalised pyrrole, and suitable chemical reagents for electropolymerisation, in the presence of a counterelectrode which is immersed in the electrolytic bath and is independent of the structured substrate, wherein the layer of material forms a working electrode.

Claim 38 (Previously Presented): The method of claim 27, wherein the functionalised pyrrole is a pyrrole with a group selected from the group consisting of an NH_2 group, a thiol

group, an N-hydroxysuccinimide ester group, a trimethoxy silyl group, a carboxyl group, an aldehyde group, and an isothiocyanate group.

Claim 39 (Previously Presented): The method of claim 27, wherein the functionalised pyrrole is selected from the group consisting of:

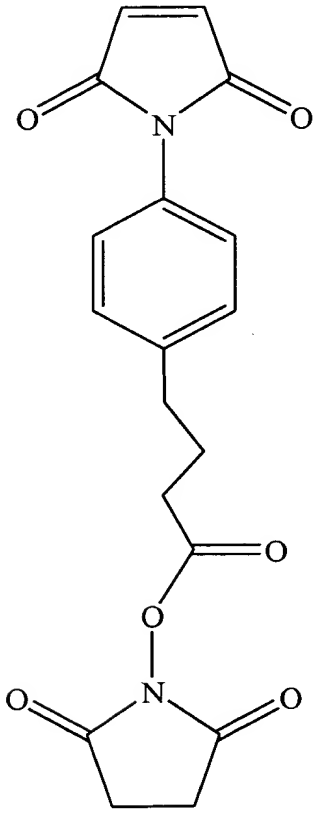


Claim 40 (Previously Presented): The method of claim 28, wherein prior to fixating the biological probe, the method further comprises collectively fixating a cross-linking agent on the functionalized pyrrole in the presence of suitable chemical reagents, wherein the crosslinking agent comprises a first function enabling its fixation onto the functionalised

pyrrole, and a second function enabling the fixation of the biological probe on the cross-linking agent.

Claim 41 (Previously Presented): The method of claim 40, wherein the cross-linking agent is selected from the group consisting of a dialdehyde, a diisothiocyanate, a diacid, a succinic anhydride, and a derivative thereof.

Claim 42 (Previously Presented): The method of claim 40, wherein the cross-linking agent is selected from the group consisting of: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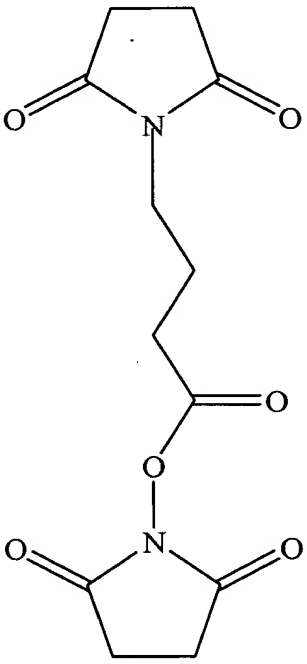
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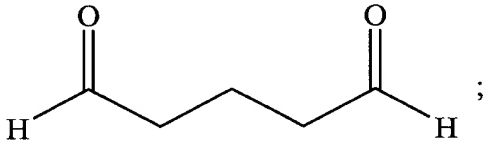
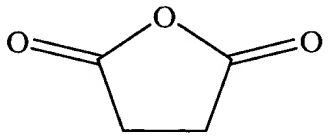
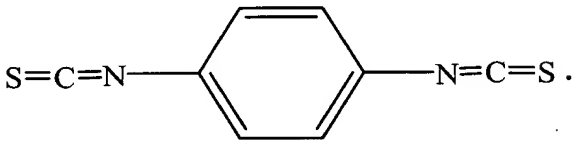

;


; and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Claim 43 (Previously Presented): The method of claim 28, wherein the biological probe is selected from the group consisting of an oligonucleotide, DNA, RNA, a peptide, a glucide, a lipid, a protein, an antibody, and an antigen.

Claim 43 (Cancelled).

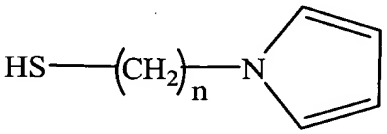
Claim 44 (Previously Presented): The method of claim 43, wherein the oligonucleotide is functionalized with a thiol group.

Claim 45 (Previously Presented): The method according to claim 30, which further comprises

chemically treating the gold layer at the base of the microtroughs in the presence of a functionalised pyrrole to form a monolayer of pyrrole on the gold layer at the base of the microtroughs.

Claim 46 (Previously Presented): The method of claim 45, wherein the pyrrole is functionalized with with a thiol group.

Claim 47 (Previously Presented): The method of claim 46, wherein the functionalized pyrrole with a thiol group has the following chemical formula:



wherein n is from 2 to 10.

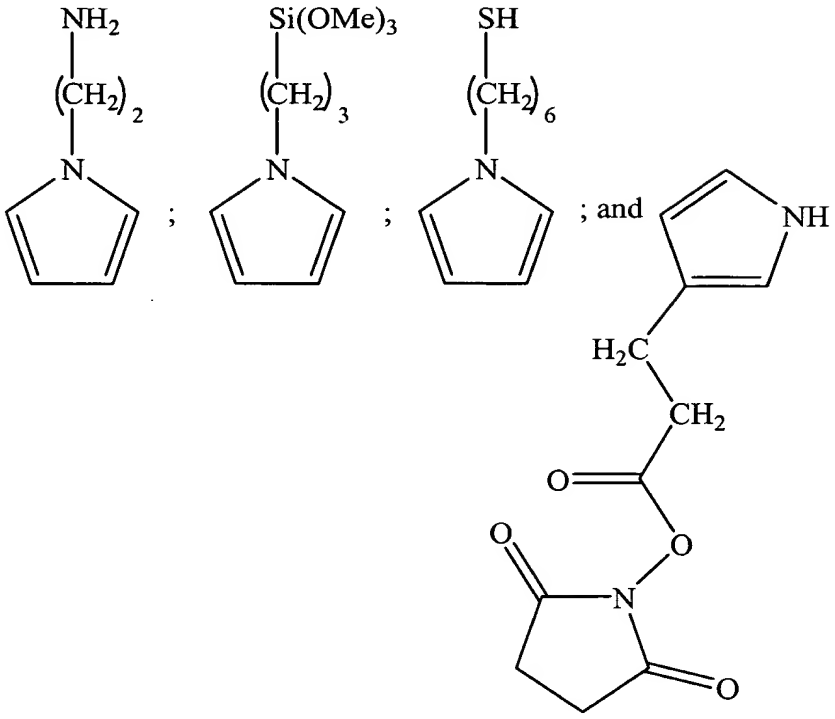
Claim 48 (Previously Presented): The method of claim 28, wherein the substrate is a silicon insert.

Claim 49 (Previously Presented): The method of claim 28, which further comprises

immersing the structured substrate in an electrolytic bath comprising a solution of pyrrole, functionalized pyrrole, and suitable chemical reagents for electropolymerisation, in the presence of a counterelectrode which is immersed in the electrolytic bath and is independent of the structured substrate, wherein the layer of material forms a working electrode.

Claim 50 (Previously Presented): The method according to claim 28, wherein the functionalised pyrrole is a pyrrole comprising a group selected from the group consisting of an NH_2 group, a thiol group, an N-hydroxysuccinimide ester group, a trimethoxy silyl group, a carboxyl group, an aldehyde group, and a isothiocyanate group.

Claim 51 (Previously Presented): The method according to claim 28, wherein the functionalised pyrrole is selected from the group consisting of:



Claim 52 (Previously Presented): A blank biochip comprising in this order: a substrate; a layer of material that can initiate and promote the adhesion of a pyrrole and functionalised pyrrole copolymer film on the layer of material by electropolymerisation; a layer of resin coating the layer of material, forming microtroughs such that the base of the microtroughs is composed at least partly of the layer of material; and a pyrrole and functionalised pyrrole copolymer layer fixed on the base of the microtroughs.

Claim 53 (Previously Presented): A biochip comprising in this order; a silica substrate; a gold layer or a silane layer comprising pyrrole sites; a resin layer coating the gold

layer or silane layer comprising pyrrole sites forming microtroughs such that the base of the microtroughs is composed at least partly of the gold layer or the silane layer comprising pyrrole sites; a pyrrole and functionalised pyrrole copolymer layer fixed on the gold layer or the silane layer comprising pyrrole sites at the base of the microtroughs, wherein the functionalised pyrrole is bound or not bound to a bi-functional cross-linking agent, and an oligonucleotide fixed directly on the functionalised pyrrole or fixed indirectly on the functionalised pyrrole by the cross-linking agent bound to the pyrrole.

Claim 54 (Previously Presented): The method of claim 28, wherein the biological probe is a functionalized oligonucleotide and which is fixed directly or indirectly onto the functionalized pyrrole.